

REMARKS

This application has been reconsidered carefully in light of the Office Action dated as mailed on 12 March 2003. A careful reconsideration of the application by the Examiner in light of the foregoing amendments and the following remarks is respectfully requested.

5 This response is timely filed as it is filed within the three (3) month shortened statutory period for response to the outstanding Office Action.

 There is no additional claim fee due for this Amendment because the number of claims does not exceed the number of independent and dependent claims for which fees have previously been paid.

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Amendment to the Claims

 By the above, claim 30 has been rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

 Claims 25-31 and 36-63 remain in the application, with claims 27-29,
15 43-46, 48-52, 55, 56, 58-60 and 63 having been withdrawn from consideration as being drawn to non-elected embodiments.

Claim Rejections - 35 U.S.C. §112

1. Claims 25, 26, 30, 31, 36-42, 47, 53, 54, 57, 61 and 62 were rejected under 35 U.S.C. §112, first paragraph, as containing subject matter alleged to not have been described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The Action asserts that:

Applicant has recited a method in which a water supplying compound reacts to form water, and that this water reacts with a water reactive fuel precursor to form a fuel. The fuel may then react with an oxidant stored in a pressurized gas. Applicant has not supplied evidence that the water supplying compound forms water on the time scale required to react with the water reactive fuel precursor, especially in those cases where the water supplying compound and the precursor are mixed.

Such rejection is respectfully traversed.

As a preliminary matter, it is submitted that independent claim 25 and newly rewritten in independent form claim 30 are each directed to an improvement in a method for inflating an inflatable safety device via an inflator device wherein a fuel material reacts to form gas generation reaction products, the improvement
5 comprising: heating a mixture containing at least a water-supplying compound and a water-reactive fuel precursor within the inflator device to form the fuel material in situ, with claim 30 additionally requiring that the fuel precursor comprises potassium t-butyl carbonate.

Such methods are believed to be fully, adequately and appropriately
10 described in the specification such as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Further, the application contains Examples 1 and 2 wherein test inflators in accordance with the invention were employed to illustrate the practice of the invention and such as to produce the results shown in the FIGS. 6-9, where FIGS. 6 and 7 are
15 graphical depictions of tank pressure as a function of time performance realized in the test tank for Examples 1 and 2, respectively, and FIGS. 8 and 9 are graphical depictions of pressure within the test inflator pressure vessel as a function of time performance realized for the test inflators of Example 1 and 2, respectively. Such results clearly demonstrate that inflator devices in accordance with the invention are
20 suitable for use in the inflation of an inflatable safety restraint airbag cushion.

Moreover, claim 26 is dependent on claim 25 and simply requires contacting the formed fuel material with a quantity of compressed gas, the compressed gas including a quantity of oxidant, reacting at least a portion of the formed fuel material with at least a portion of the quantity of oxidant to produce heat, heating a stored quantity of inert gas with at least a portion of the produced heat to form an increased volume of gas and passing at least a portion of the increased volume of gas into the inflatable safety device to effect the inflation thereof. As such, the stated basis of rejection is clearly believed to be not applicable thereto.

Claim 31 is dependent on claim 25 and simply requires that the water-supplying compound comprises ammonium nitrate. As such, the stated basis of rejection is clearly believed to be not applicable thereto.

Further, the remaining of the so-rejected claims, i.e., claims 36-42, 47, 53, 54, 57, 61 and 62, are each believed to adequately and appropriately described and enabled in the subject specification and such as supported by the examples therein contained. In this regard, specific reference is made to page 16, line 1 through page 21, line 12 of the application, for example.

In view of the above, this basis of rejection of these claims is believed to be overcome or not applicable thereto and notification to that effect is solicited.

2. Claims 25, 26, 30, 31, 36-42, 47, 53, 54, 57, 61 and 62 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for allegedly failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5 The Action asserts that:

Applicant states that the use of water-reactive fuels has been limited in inflator technology. The water reactive devices of which the examiner is aware are blasting devices which use a thermite reaction to generate heat and molten metal, which then reacts with water in a reservoir to form large quantities of heat and steam. See, e.g., US 4,280,409. If applicant is drawing parallels between this sort of device and his own invention, this is confusing, as the devices operate on different principles.

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In view of the above, the above-identified basis of rejection appears to be based on a misunderstanding of a statement contained in the specification. In particular, the Application, at page 3, lines 8-10, simply states:

Unfortunately, the greater or more extensive use of water-reactive materials in inflator technology has generally been limited as a result of various safety and manufacturing concerns.

5 It is believed that nowhere in the subject application has Applicant drawn parallels between blasting devices and the subject invention. Rather, such a parallel has apparently been drawn in the outstanding Office Action without any impetus from or by the Applicant.

10 Thus, this basis of rejection is not believed to be applicable to these claims and notification to that effect is solicited.

 Moreover, as claims 30, 57, 61 and 62 have not been rejected on any prior art basis and the §112 rejections thereof overcome or not applicable, these claims are believed to be in condition for allowance and notification to that effect is solicited.

15 **Claim Rejections - 35 U.S.C. §102(a)**

 Claims 25, 26, 31, 36-38, 40, 42, 47, and 54 were rejected under 35 U.S.C. §102(a) as being anticipated by WO 00/29261.

The Action asserts that WO 00/29261 discloses carborane containing airbag inflators and methods for their inflation. According to one inflation method, combustion of a carborane fuel and a primary oxidant form combustion products including heat and a quantity of a first product fuel species.

5 Such rejections are respectfully traversed.

 It is respectfully submitted that WO 00/29261 fails to show or suggest an improvement in a method for inflating an inflatable safety device via an inflator device wherein a fuel material reacts to form gas generation reaction products, the improvement comprising: heating a mixture containing at least a water-supplying
10 compound and a water-reactive fuel precursor within the inflator device to form the fuel material in situ, as claimed in independent claim 25, for example. In particular, it is believed that WO 00/29261 fails to show or suggest heating a mixture containing at least a water-supplying compound and a water-reactive fuel precursor within the inflator device to form the fuel material in situ, as specifically claimed.

15 Independent claim 47 is directed to a method for inflating an inflatable safety device via an inflator device wherein a fuel material reacts to form gas generation reaction products, the method comprising: reacting a water-supplying compound contained within the inflator device to form water, contacting a
20 water-reactive fuel precursor contained within the inflator device with at least a portion of the formed water to form the fuel material in situ within the inflator device,

contacting the formed fuel material with a quantity of compressed gas, the compressed gas including a quantity of oxidant, reacting at least a portion of the formed fuel material with at least a portion of the quantity of oxidant to produce heat, heating a stored quantity of inert gas with at least a portion of the produced heat to form an increased volume of gas and passing at least a portion of the increased
5 volume of gas into the inflatable safety device to effect the inflation thereof.

Such specific method for inflating an inflatable safety device is not believed to be shown or suggested by WO 00/29261. For example, the Office Action, in the statement of this grounds of rejection states that in accordance with one
10 inflation method of WO 00/29261:

combustion of carborane fuel and a primary oxidant form combustion products including heat and a quantity of a first product fuel species.

15 However, Tables 1 and 2 of WO 00/29261 make clear that the primary oxidant (water) is included in the material load in the inflator device thereof, i.e., the primary oxidant is loaded into the inflator device and not formed therein. Further, in this regards it is respectfully submitted that the Action incorrectly refers to Tables 1 and 2 in WO 00/29261 as supporting the contention that ammonium nitrate is the source
20 of the water oxidant. For example, the Examiner's attention is directed to page 23,

line 22 through page 27, line 2 of WO 00/29261 which is believed to make clear that the oxidant source material is the source for a secondary oxidant such as reacts, e.g., burns, with a fuel produced upon reaction of the carborane fuel and the primary oxidant. This is in sharp contrast to the claimed invention which requires that the
5 formed fuel material react with oxidant present in the stored compressed gas within the inflator. For example, claims 26 and 47 each includes the steps of:

contacting the formed fuel material with a quantity of
compressed gas, the compressed gas including a quantity of oxidant,
10 reacting at least a portion of the formed fuel material with at
least a portion of the quantity of oxidant to produce heat.

In view of the above, the withdrawal of this stated basis of rejection is respectfully requested.

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Claim Rejections - 35 U.S.C. §103

1. Claims 25, 26, 31, 36-38, 40, 42, 47 and 54 were rejected under 35 U.S.C. §103 as being unpatentable over WO 00/29261.

In so rejecting these claims, the Action asserts that these claims are
20 "obvious because they are anticipated."

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As submitted above relative to the anticipation rejection of claims 25, 26, 31, 36-38, 40, 42, 47, and 54 based on WO 00/29261, and which arguments are herein and hereat incorporated, such methods for inflating an inflatable safety device as specifically claimed are not believed to be shown or suggested by WO 00/29261.

5 In view thereof, these claims are believed to be patentable over WO 00/29261 and notification to that effect is solicited.

2. Claims 25, 26, 31, 36-39, 41 and 42 were rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent 6,224,099 B1 to Nielson et al. (hereinafter
10 "Nielson").

In so rejecting these claims the Action states that:

This reference differs from the claimed subject matter in that it does not disclose a method which reads on applicant's claims with sufficient
15 specificity to constitute anticipation.

Such rejections are respectfully traversed.

Independent claim 25 is directed to an improvement in a method for inflating an inflatable safety device via an inflator device wherein a fuel material reacts to form gas generation reaction products, the improvement comprising: heating a mixture containing at least a water-supplying compound and a water-reactive fuel precursor within the inflator device to form the fuel material in situ. Thus, claim 25 specifically requires that in a method for inflating an inflatable safety device via an inflator device wherein a fuel material reacts to form gas generation reaction products, that a mixture containing at least a water-supplying compound and a water-reactive fuel precursor be heated within the inflator device to form the fuel material in situ.

Such in situ formation of such a fuel material is nowhere shown or suggested by Nielson. For example, Nielson does not show or suggest the inflator device inclusion of a water-supplying compound, let alone the heating of a mixture containing at least a water-supplying compound and a water-reactive fuel precursor within the inflator device to form the fuel material in situ, as specifically claimed.

In view of the above, such basis of rejection of claim 25 and the claims dependent thereon are believed to be overcome or not applicable and notification to that effect is solicited.

3. Claims 25, 26, 31 and 36-39 were rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent 5,486,248 to Taylor et al. (hereinafter "Taylor").

In so rejecting these claims, the Action explicitly states:

5 This reference differs from the claimed subject matter in that it does not disclose a method which reads on applicant's claims with sufficient specificity to constitute anticipation.

Such rejections are respectfully traversed.

10 Independent claim 25 is directed to an improvement in a method for inflating an inflatable safety device via an inflator device wherein a fuel material reacts to form gas generation reaction products, the improvement comprising: heating a mixture containing at least a water-supplying compound and a water-reactive fuel precursor within the inflator device to form the fuel material in situ. Thus, claim 25
15 specifically requires that in a method for inflating an inflatable safety device via an inflator device wherein a fuel material reacts to form gas generation reaction products, that a mixture containing at least a water-supplying compound and a water-reactive fuel precursor be heated within the inflator device to form the fuel material in situ.

Such in situ formation of such a fuel material is nowhere shown or suggested by Taylor. For example, Taylor nowhere shows or suggests the heating of a mixture containing at least a water-supplying compound and a water-reactive fuel precursor within an inflator device to form the fuel material in situ, as specifically
5 claimed.

In view of the above, such basis of rejection of claim 25 and the claims dependent thereon are believed to be overcome or not applicable and notification to that effect is solicited.

Withdrawn Claims

10 In view of the above, each of independent claims 25, 47 and 57, respectively, is believed to be in condition for allowance. As such, the claims that depend on a respective one of such independent claims and which dependent claims had previously been withdrawn from consideration are now believed to be herein
15 entitled to consideration. As the respective underlying independent claims are believed to be in patentable over the prior art of record, so to, these claims dependent thereon, are also believed to be patentable over the prior art of record and notification to that effect is solicited.

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Conclusion

It is believed that the above Amendment places all pending claims in condition for allowance and notification to that effect is solicited. However, should the Examiner detect any remaining issue or have any question, the Examiner is kindly requested to contact the undersigned, preferably by telephone, in an effort to expedite examination of the application.

Respectfully submitted,



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